

- a. first signal generator means to generate a first digital signal having a plurality of possible amplitude levels which occur in pseudo-random sequence;
 - b. second signal generator means responsive to said intelligence containing signal to generate a second digital signal which has a plurality of possible amplitude levels and in which transitions between said amplitude levels represent traversals of said at least one amplitude datum level by said intelligence containing signal;
 - c. first signal processing means comprising a first scalar combination means to effect scalar combination of the first digital signal and the second digital signal to form a first component of an output signal of the transmitter terminal;
 - d. second signal processing means comprising amplitude envelope processing means for processing said amplitude envelope separately from said second digital signal to form a second component of the output signal of the transmitter terminal;
 - e. means to include said second component in the output signal of said transmitter terminal with said first component; and
 - f. means to transmit said output signal along said communication path to said receiver terminal;
 - v. said receiver terminal comprising:
 - a. means to receive the transmitter terminal output signal as a receiver terminal input signal;
 - b. third signal generator means to generate a first replica signal which is a replica of said first digital signal;
 - c. fourth signal generator means responsive to said receiver terminal input signal to generate a third digital signal which has a plurality of possible amplitude levels and in which transitions between said amplitude levels represent traversals of at least one amplitude datum level by said receiver terminal input signal;
 - d. first signal combining means to combine said first replica signal with said third digital signal to derive a second replica signal representing said amplitude datum level transitions in said intelligence containing signal;
 - e. third signal processing means to recover a third replica signal which is a replica of said amplitude envelope; and
 - f. second signal combining means to combine said third replica signal with said second replica signal to form an output signal containing the intelligence that was in said intelligence containing signal.
11. A system according to claim 10 in which said second signal processing means comprises bypass means to couple the amplitude envelope signal directly to said means to include said second component in the transmitter terminal output signal, in signal bypass relationship both to the second signal generator means and to the first signal processing means.
12. A system according to claim 10 in which the amplitude envelope processing means of said second signal processing means comprises a fifth signal generator means to generate a fourth digital signal which has a plurality of possible amplitude levels which occur in pseudo-random sequence, and a further combination means to effect combination of the fourth digital signal

with the amplitude envelope signal to form said second component.

13. A system according to claim 10 including circuit means through which the input signal is passed to increase the amplitude datum level transition rate.

14. A system according to claim 11 in which said third signal processing means comprises amplitude envelope detector means coupled to receive said receiver terminal input signal and coupled to said second signal combining means in signal bypass relationship both to said fourth signal generator means and to said first signal combining means.

15. A system according to claim 12 in which said third signal processing means comprises sixth signal generator means to generate a fifth digital signal which has a plurality of possible amplitude levels which occur in pseudo-random sequence, third signal combining means to combine said fifth digital signal with said third digital signal to form a sixth digital signal, and amplitude envelope derivation means coupled to receive said sixth digital signal and to produce said third replica signal therefrom.

16. A speech scrambler/descrambler system comprising microphone means, a first pseudo-random sequence generator, first signal combining means to combine the output of the microphone means with the output of the first pseudo-random sequence generator, first signal squaring means to square the output of said first signal combining means, a second pseudo-random sequence generator, second signal combining means to combine the output of the signal squaring means with the output of the second pseudo-random sequence generator to produce a scrambled speech signal, means to receive the scrambled speech signal, second signal squaring means to square the received scrambled speech signal, a third pseudo-random sequence generator, third signal combining means to combine the output of the second squaring means with the output of the third pseudo-random sequence generator, a fourth pseudo-random sequence generator, fourth signal combining means to combine the output of the third signal combining means with the output of the fourth pseudo-random sequence generator, amplitude envelope derivation means to derive the amplitude envelope from the output of said fourth signal combining means, fifth signal combining means to combine the output of said third signal combining means with the output of said amplitude envelope derivation means to produce a descrambled speech signal, and audio transducer means to convert said descrambled speech signal to audible descrambled speech.

17. A system according to claim 16 in which high-frequency emphasizing means is coupled between said microphone means and said first signal combining means.

18. A system according to claim 16 in which said amplitude envelope derivation means comprises series-connected low-pass filter means and non-linear circuit means.

19. A system according to claim 16 further including high-frequency de-emphasizing means coupled between said fifth signal combining means and said transducer means.

20. A system according to claim 16 further including noise and spurious high-frequency signal component suppression means coupled between said fifth signal combining means and said transducer means.

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